Detailed Project Report/Environmental Assessment

Milbridge, Maine/Narraguagus River
State of Maine, Route 1A (Bridge Street)

Emergency Streambank/Shoreline Protection

JUNE 1991

US Army Corps
of Engineers
New England Division

Maine State Highway - Route 1A (Bridge Street)
Narraguagus River
Milbridge, Maine

Emergency
Streambank / Shoreline Protection
Detailed Project Report

U.S. ARMY CORPS OF ENGINEERS
NEW ENGLAND DIVISION
WALTHAM, MASSACHUSETTS

June 1991

DETAILED PROJECT REPORT
MAINE STATE HIGHWAY - ROUTE 1A (BRIDGE STREET)
NARRAGUAGUS RIVER / MILBRIDGE, MAINE

EXECUTIVE SUMMARY

This study, authorized under the special continuing authority contained in Section 14 of the 1946 Flood Control Act, as amended, investigates a streambank erosion problem along the Narraguagus River in Milbridge, Maine, that endangers a highway embankment and bridge on U.S. Route 1A . Route 1A is an important highway for both commercial and private motor vehicles, connecting the northern and southern portions of Milbridge.

The town of Milbridge is located on U.S. Route 1, 20 miles northeast of Bar Harbor. The erosion area is located along the right bank of the Narraguagus River, directly upstream from the more southerly bridge on U.S. Route 1A (locally known as Bridge Street), as shown on the Location Map - Plate 1 in this report. Erosion, induced primarily by tidal fluctuations and ice action, will eventually undermine the integrity of the roadway. Route 1A is an important State highway for motor vehicles traveling along the Maine coastline. Failure of the highway would require about a 6 mile detour during the repair period.

This report describes the plan formulation process, including the development and evaluation of several erosion control measures to protect Route 1A. Each measure was assessed in terms of its effectiveness, efficiency, completeness and public acceptability. The selected plan provides the greatest benefits at the least cost and prescribes the placement of stone slope protection for a total length of about 150 feet along the Route 1A embankment and the adjacent right bank. The proposed project has an estimated total first cost of $135,000. Taken at the current Federal interest rate of 8-3/4 percent over a 25-year amortization period, the annual project cost would be $14,000. Total annual benefits are estimated at $24,000 resulting in a benefit-to-cost ratio of 1.7 to 1.

It is recommended that, subject to certain conditions of local cooperation as outlined in this report, the proposed project be constructed. The estimated share of the first cost to the local interests is $34,000. The annual operation and maintenance costs, estimated at $500, are also a non-Federal responsibility.

DETAILED PROJECT REPORT

ROUTE 1A (BRIDGE STREET)
NARRAGUAGUS RIVER
MILBRIDGE, MAINE

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DETAILED PROJECT REPORT

MAINE STATE HIGHWAY - ROUTE 1A
NARRAGUAGUS RIVER
MILBRIDGE, MAINE
JUNE 1991

I STUDY AUTHORITY

This Detailed Project Report (DPR) has been accomplished under the U.S. Army, Corps of Engineers special continuing authority contained in Section 14 of the 1946 Flood Control Act, as amended. This investigation determined the need and feasibility of protecting the Maine State Highway Route 1A (Bridge Street) by constructing emergency riverbank protection along the Narraguagus River in Milbridge, Maine. Federal assistance for alleviating the erosion problem adjacent to Route 1A was requested by Milbridge's Town Manager, William H. Treworgy in a letter dated 19 July 1990.

Under the provisions of the Section 14 authority, Federal construction funding is available for the protection of highways, bridges, public works and public use facilities from streambank or shoreline erosion. Such work must be economically justified and advisable in the opinion of the Corps' Chief of Engineers.

II DESCRIPTION OF AREA

The town of Milbridge is located on the southern coastline of Washington County, Maine. The town is bordered by the town of Cherryfield to the north and west; the Atlantic Ocean to the south; the town of Harrington to the east; and the town of Steuben to the west. Milbrdge is located on U.S. Route 1, 20 miles northeast of Bar Harbor. The erosion site is located approximately 1.5 miles upstream from the mouth of the Narraguagus River in Milbridge. (See Plate 1- Location Map.)

III PROBLEM DESCRIPTION

The riverbank erosion site is located along the right bank of the Narraguagus River, directly upstream from the bridge on Route 1A. Erosion begins at the southwest abutment of the bridge and extends upstream about 150 linear feet (ft.) (See Plate 1A- Site Photographs). The height of the riverbank along this section of the highway is approximately 20 to 25 ft.. The slope of the embankment varies from about 1: 2 (Vertical on Horizontal) near the bridge for about 60 ft., and 1:1.5 and 1:2 for the final 90 ft.

Along certain areas, particularly near the bridge, erosion has undermined the highway shoulder. In an attempt to control erosion at the site, the State of Maine Department of Transportation dumped rockfill along the toe of the bank several years ago. Erosion has continued to undermine the roadway embankment, due to insufficient bedding material. The erosion is primarily influenced by tidal fluctuations as opposed to riverine (both tidal and freshwater) flow. To a lesser degree storm water runoff also contributes to the erosion of fine particles from the riverbank. In addition, seasonal ice action greatly contributes to the problem. Since the area of concern is well protected from significant fetch distances, wind induced wave action plays a minor role.

IV HYDROLOGIC & HYDRAULIC ASSESSMENT

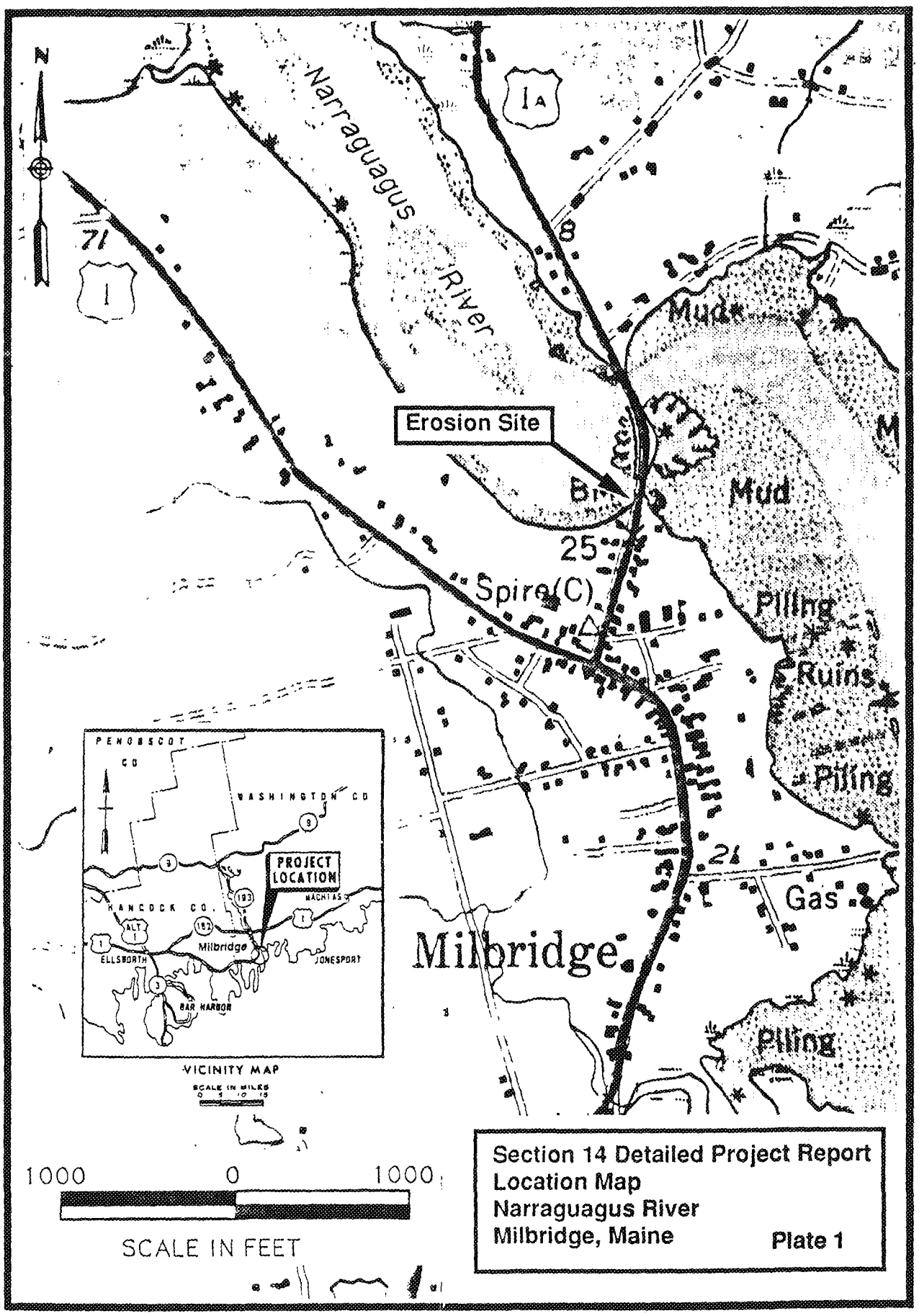
The drainage area of the Narraguagus River is 243 square miles at its mouth. A United States Geologic Survey (USGS) gaging station is located approximately 6 miles upstream of the erosion site at Cherryfield, Maine. The gaging station is beyond tidal influence. The drainage area at the station is 227 square miles, with a peak discharge of 11,300 cubic feet per second (cfs) for a 1 percent chance (100-year) frequency freshwater flood event. It is estimated that discharges downstream at the erosion site are greater in magnitude. These discharges are due primarily to large tidal fluctuations, with freshwater flow having a relatively minor overall contribution. Maximum velocities can be expected in the range of 10 to 12 feet per second (fps) based on both tidally influenced and freshwater flow characteristics at the erosion site.

The mean tide range at the site is about 11.2 ft. Higher tides may occur during storm events and spring tide conditions. Tidal datum relationships and tidal flood frequencies were determined from Tidal Flood Profiles, prepared in September 1988 by the Corps. Table 1 illustrates the estimated frequency and magnitude of tidal flooding at the mouth of the Narraguagus River.

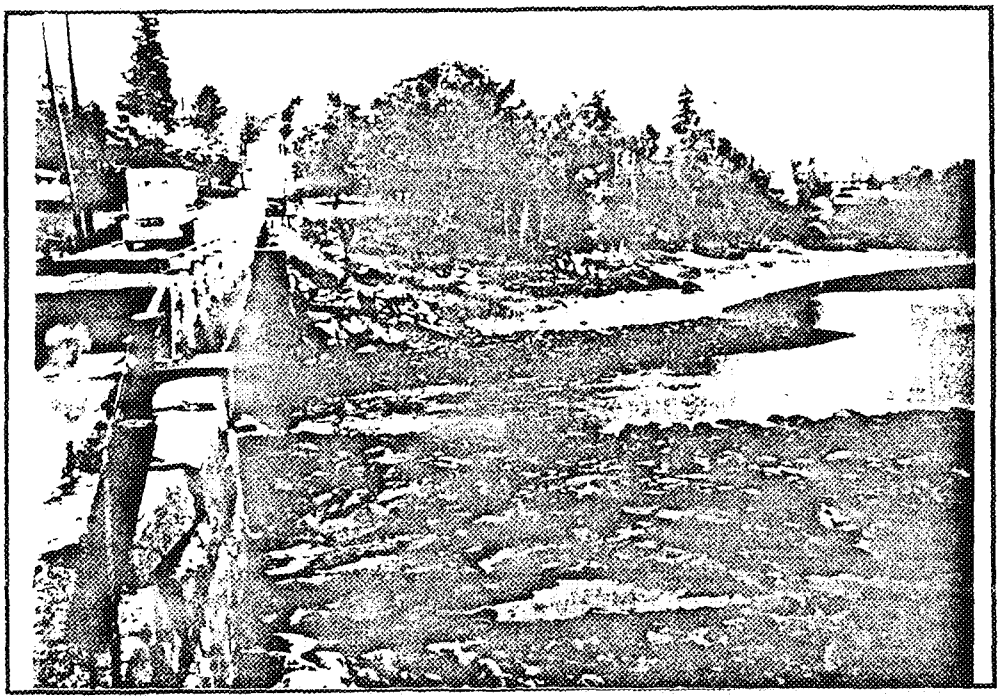
TABLE 1

FLOOD EVENT & TIDAL ELEVATION RELATIONSHIPS
(NGVD)
Narraguagus River / Milbridge, Maine

Flood Event	Stillwater Tide Elevations
1-year frequency	8.3
10-year frequency	10.3
50-year frequency	11.1
100-year frequency	11.5



Section 14 Detailed Project Report
Location Map
Narraguagus River
Milbridge, Maine
Plate 1



Looking directly at the erosion site from across the Narraguagus River. The abutment on the left side of the photo is threatened by streambank erosion. Rock has also been dumped at the site in attempt to alleviate the problem.

Looking at the erosion from the toe of the slope. The threatened abutment is to the left. Rte. 1A is at the top of the slope.

DEPARTMENT OF THE AIR
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CORPS OF ENGINEERS

SECTION 14 Detailed Project Report
SITE PHOTOGRAPHS
Narraguagus River
[illegible] bridge, Maine

PLATE 1A

V PLAN FORMULATION

This section describes the alternatives that were studied, plans that were developed, and the process that was used to screen each plan. The formulation and analysis of each plan to reduce or eliminate the riverbank erosion problem is based on careful review of the existing and future conditions as well as the problems, needs and opportunities of the town of Milbridge. Potential methods for eliminating future erosion of the riverbank, which supports the Route 1A highway embankment and bridge abutment, were evaluated, taking into consideration the strong state and local interest in retaining the natural character of the area.

The Federal Objective

The Federal objective of water and related land resources project planning is to contribute to the National Economic Development (NED) consistent with protecting the Nation's environment pursuant to national environmental statutes, applicable executive orders and other Federal planning requirements. Economic justification criteria requires that annual benefits due to the emergency riverbank stabilization improvements exceed the annualized economic costs of those improvements.

A proposed project should maximize net annual benefits. Corps financial participation is limited to the level of development of the plan which maximizes net benefits. It is the goal of this study to select one plan, called the NED Plan, which is consistent with Federal objectives. All alternative plans, including the NED plan, were formulated in consideration of four criteria: completeness, effectiveness, efficiency and acceptability.

Planning Objectives & Constraints

The planning objectives for this study were based on an assessment of the problems, needs and opportunities in the study area, as determined by Corps investigation statements, regional concerns and goals. The degree to which the alternative plans meet these objectives, while complying with the required criteria, determines which alternative will ultimately be selected.

The objectives of this study are to:

- Determine ways to eliminate riverbank erosion that has threatened the Route 1A highway embankment;
- Strive to avoid adverse impacts and offset unavoidable adverse impacts to existing aquatic resources, and wetlands; Strive to achieve a goal of no overall net loss of wetlands;
- Support the objectives of other planning agencies and complement regional long range recreational, environmental protection and commercial fishery development plans.

Planning constraints are those parameters that limit the implementation of any proposed plan of riverbank stabilization and serve to eliminate from consideration those possibilities that offer no acceptable degree of satisfaction. These constraints can include natural conditions, economic factors, social and environmental considerations, and legal restrictions. The following constraints defined the precise nature of the study:

- Current State of Maine policy directs that no activity which would cause a loss in wetland area, functions and values shall be permitted if there is a practicable alternative to the activity which would be less damaging to the environment.
- Alternatives considered should not unduly encroach upon planned riverfront improvements. Evaluation of alternatives will consider local, State and Federal laws affecting the development within the study area.

In order to enhance the physical and social environment of the study area and to avoid creating unacceptable project effects, the following environmental considerations were evaluated:

- To avoid wherever possible the direct loss of intertidal wetlands
- To avoid adversely affecting the water quality of the riverine environment
- To reduce or mitigate any significant adverse effects not easily avoidable
- To design and develop project features so as to provide opportunities which enhance the environment and recreation in the study area

Analysis of Alternatives

This section describes the range of alternative plans considered. Each alternative was investigated in sufficient detail to determine its economic and engineering feasibility, the effects of implementation and public acceptance. These alternatives are categorized as either structural or nonstructural.

Without Project Condition - The without project condition, is a sequence of events that can be reasonably assumed to occur in the absence of a Federal project to prevent riverbank erosion at the study site. Without permanent protection along the riverbank, local interests would need to construct temporary measures to protect the highway. The most likely measure would involve the placement of fill on the riverbank and the repair of the highway. This action would only provide emergency protection and would temporarily keep the highway open for vehicular traffic. However, without proper grading and bedding of layers of stone, the riverbank soil would continue to erode due to constant tidal action at the site.

Route 1A is an important route for motor vehicles traveling along the Maine coastline. The nearest access to the other side of the Narraguagus River would require traveling an additional 6 miles to the town of Cherryfield on Route 1. Although Route 1 can support the level of vehicle conveyance that is currently being provided by Route 1A, there would be an additional commensurate amount of travel time due to the detour.

Alternatives Investigated - During the reconnaissance study, three alternative courses of action were investigated to determine the best solution to the erosion problem. The alternatives are as follows:

A. No Action
B. Relocate Route 1A
C. Construct Streambank Protection

The feasibility and the advisability of each alternative was evaluated as follows:

A. No Action - If no action is taken to stabilize the riverbank, erosion will continue, eventually resulting in the loss of the highway. Based on this projected outcome, of closing off a portion of Route 1A, the no action alternative was considered unacceptable. In view of the foregoing a 'No Action' alternative would not be an acceptable solution to the erosion problem that is threatening the highway embankment.

B. Relocate Route 1A (Bridge Street) - The existing town development and local terrain in the area of the erosion site do not lend themselves economically to the relocation of the Route 1A highway. A large residential structure would have to be relocated to move the highway to the west away from the riverbank erosion.

Route 1A crosses the Narraguagus River connecting the northern and southern portions of Milbridge. Relocating this highway away from the erosion would entail relocating two existing bridges. Building a new bridge spanning across the river would be costly from an economic stand point to be feasible primarily due to the local terrain in the area. In addition to the construction of the bridge, a guardrail, telephone and electric power lines, and drainage culverts would also have to be relocated. There would be also a disruption of vehicular traffic on the highway until the relocation is completed. The prohibitive expense and associated disruption involved in the relocation of the highway makes this alternative unacceptable. Therefore, relocating the highway is not recommended.

C. Provide Riverbank Protection - During this study, several possible methods of protecting the roadway were investigated. A concrete modular block wall, a timber crib wall and stone slope revetment were all considered as potential solutions to protect the area.

Gabion (stone filled wire baskets) walls were not considered as a potential solution since the baskets would be subjected to seasonal ice action. The ice forces could either shear the wire baskets or the metal straps that link individual baskets, thereby severely reducing the wall's integrity. Similarly, a rubber tire wall system would not provide the necessary protection due to the effects of ice action on the metal straps that link the tires.

A concrete modular block wall would provide the essential protection for the area. This alternative would require minimum maintenance. The cost of construction was estimated at $179,000.

A rock-filled timber crib wall was considered to provide riverbank protection to the highway. A timber crib wall would be comparable in construction cost to a cast-in place concrete or precast concrete modular wall if the timber piles could be driven into the ground. This plan would provide sufficient protection to the riverbank, the construction cost was estimated to be $164,000. However, a timber crib wall is more expensive to maintain and may not last as long as a concrete wall. This alternative was considered inappropriate due to its projected high maintenance cost.

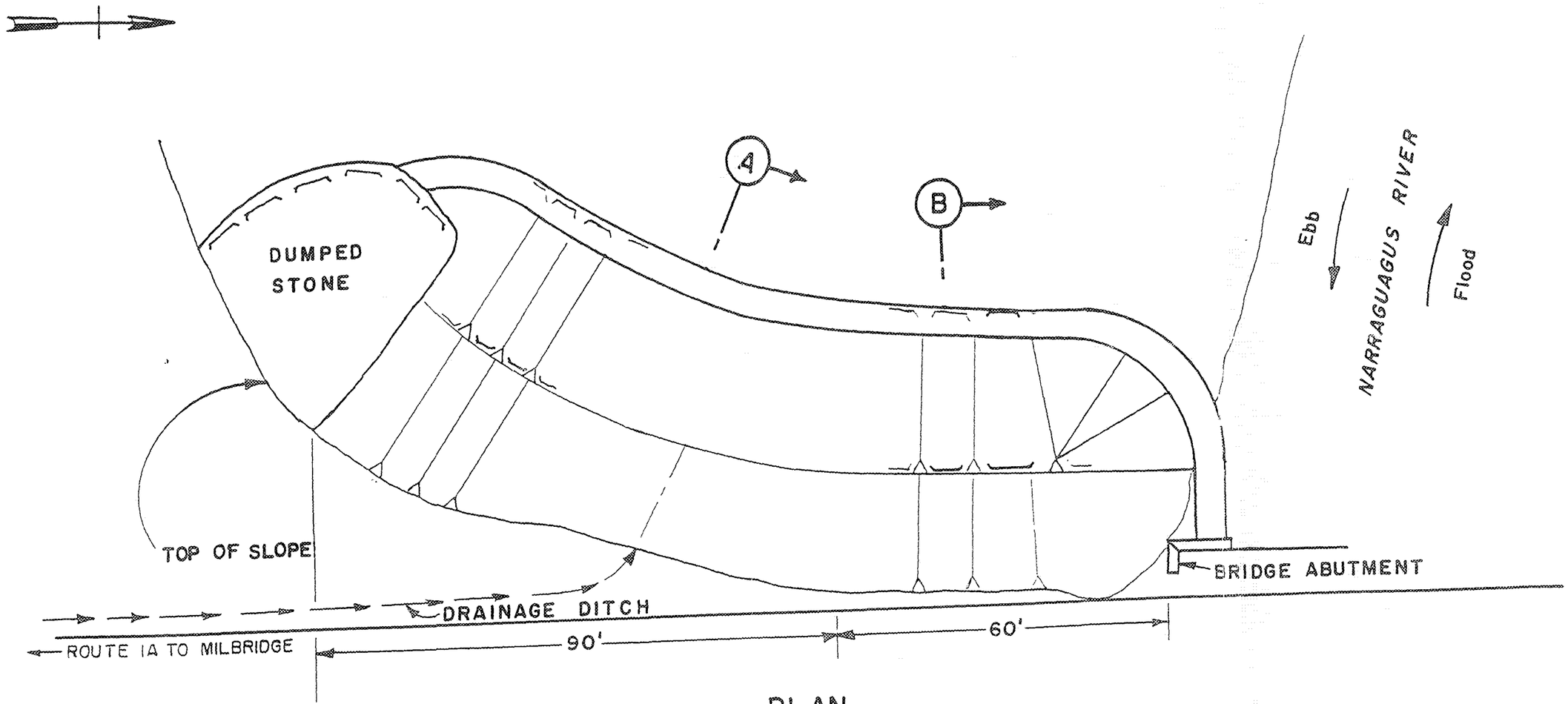
Although all of the alternatives investigated could provide protection to the riverbank and highway embankment, stone slope revetment was found to be both the most economical and best erosion control method considered. The total project first cost of the revetment is determined to be $135,000 and is the preferred alternative for this erosion site.

VI THE SELECTED PLAN

The proposed placement of stone slope revetment along the Narraguagus River bank, to protect the Route 1A highway embankment, is the most cost effective, physically viable erosion control method. The plan calls for the construction of stone revetment (riprap) beginning at the southwest abutment of the bridge and extending upstream along the right bank of the Narraguagus River. The proposed stone revetment would consist of clearing and grubbing existing vegetation on the slope prior to the placement of a 2.5 foot thick layer of stone underlain by a 1 foot layer of stone bedding, a 1 foot layer of gravel bedding and a 0.5 foot layer of sand bedding, all placed on a 1 vertical on 2.5 horizontal slope. The revetment would extend upstream approximately 150 linear ft. from the bridge abutment (See Plate 2- General Plan.). The upper 9 foot portion of the protection would consist of topsoil and seed placed on top of granular fill. The height of the protection above mean high water would be about 6 ft. and the toe of the slope would extend to about 10 ft. below mean high water. (See Plate 3 & 4- Typical Section.)

The stone slope revetment project was sized to resist both hydraulic forces associated with the 1 percent chance (100-year) event discharge, as well as seasonal ice flows on the Narraguagus River. Based on experience at similar tidal areas and engineering judgment, it was determined that a minimum D50 stone size of 1.0 ft. placed on a 2.5 horizontal to 1 vertical slope would be required to resist the anticipated velocities and associated eddy action along the toe of the riverbank.

Ice flows traveling downstream cause a great effect upon the rate of erosion, and are a major concern for this project due to the site's location and river alignment. A conservative stone protection thickness should be used to account for the ice forces. Although the magnitudes of these forces are unknown, a stone thickness in the order of 2.5 to 3.0 ft. has been shown in the past, at other similar locations, to adequately resist severe ice action without experiencing significant damage. Therefore, the recommended plan for this site would use a 2.5 foot thick layer of stone. The stone revetment would provide a 100-year level of protection for the riverbank.



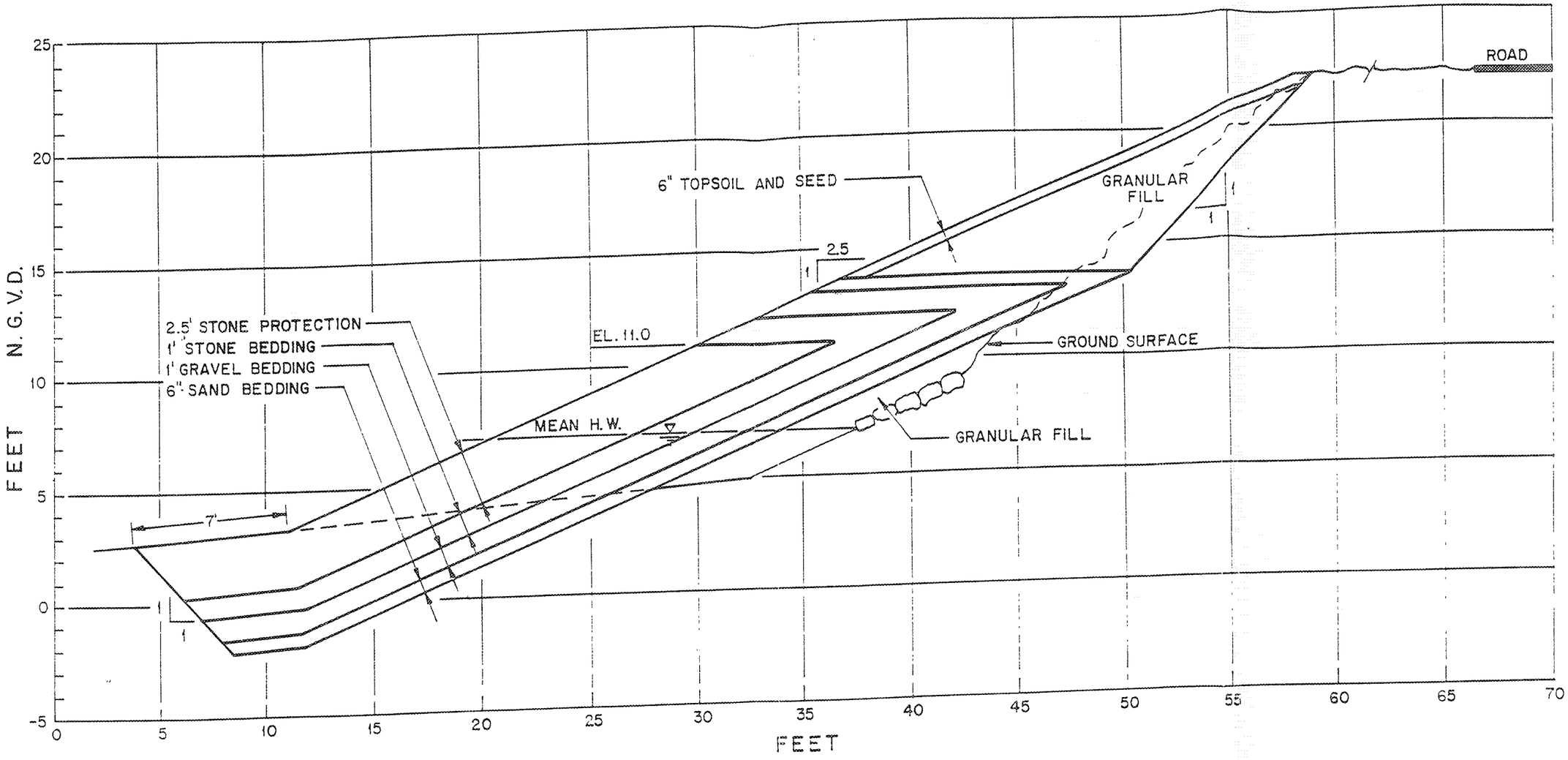
PLAN

SCALE: 1" = 20' ±

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS

SECTION 14 Detailed Project Report
General Plan
Narraguagus River
Milbridge, Maine

PLATE 2



SECTION A

SCALE: 1" = 5'

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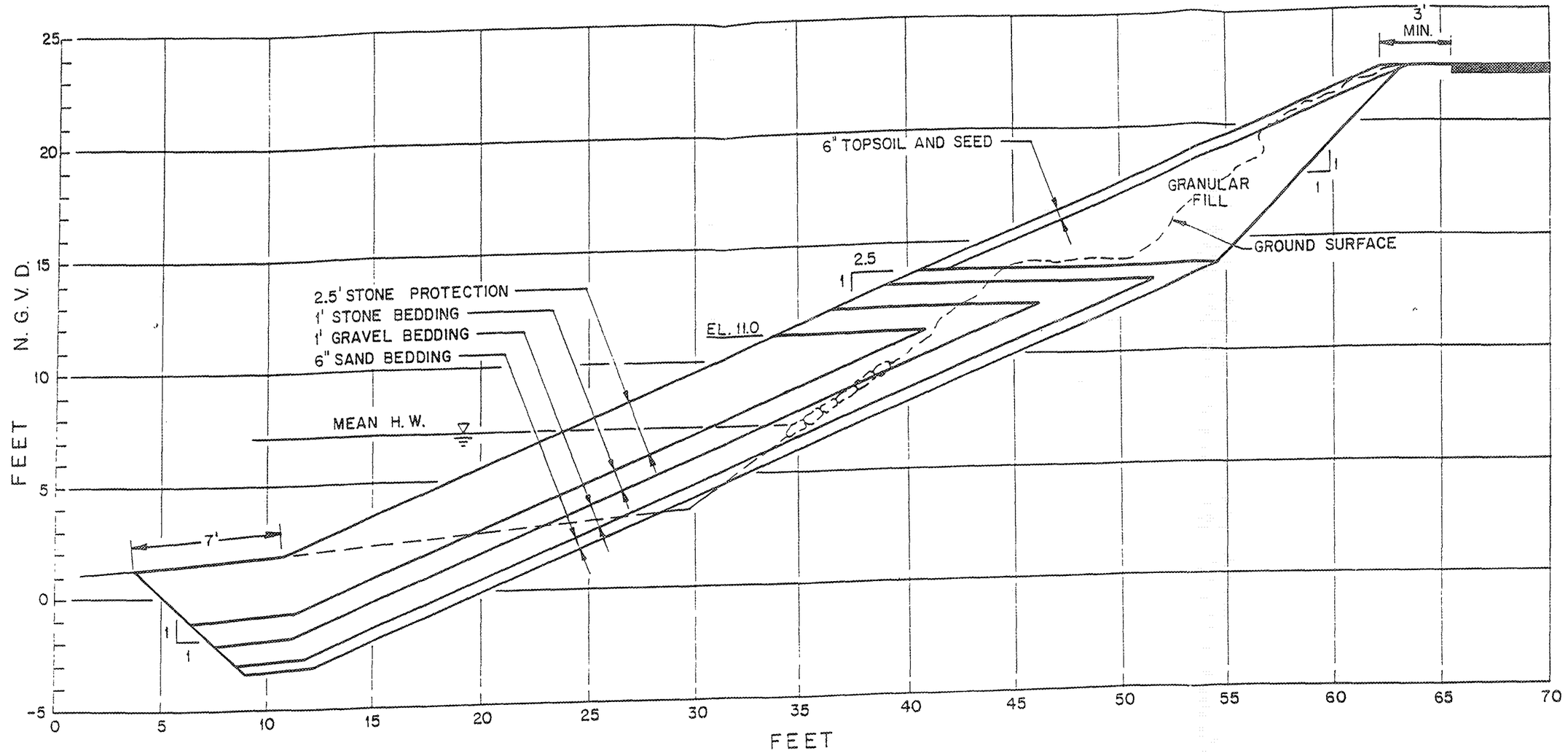
SECTION 14 Detailed Project Report
Typical Section
Narraguagus River
Milbridge, Maine

PLATE 3



SECTION B

SCALE: 1" = 5'

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORPS OF ENGINEERS

SECTION 14 Detailed Project Report
Typical Section
Narraguagus River
Milbridge, Maine

PLATE 4

VII ESTIMATES OF FIRST COSTS & ANNUAL CHARGES

Estimates of first costs and annual charges for the placement of the stone slope revetment along the Naraguagus River is shown on Table 2. Since the riverbank and all surrounding lands are either owned or managed by either the town of Milbridge or the State of Maine, the non-Federal responsiblity of providing the necessary lands, easements and rights-of-way for project construction is a local issue and will not affect project costs. Estimated unit prices are based on similar work performed in this area.

TABLE 2

TOTAL COSTS AND ANNUAL CHARGES
EMERGENCY RIVERBANK PROTECTION
NARRAGUAGUS RIVER - MILBRIDGE, MAINE
(June 1991 Price Level)

ITEM	QUANTITY	UNIT	PRICE	UNIT COST
Site Preparation	1	JOB	L.S.	$4,200
Excavation	400	C.Y.	$ 4	1,600
Stone Protection	500	C.Y.	43	21,500
Stone Bedding	300	C.Y.	34	10,200
Gravel Bedding	300	C.Y.	18	5,400
Sand Bedding	175	C.Y.	20	3,500
6" Topsoil & Seed	350	S.Y.	4	1,400
Compacted Granular Fill	400	C.Y.	7	2,800
Remove Guardrail	200	L.F.	6	1,200
New Guardrail	200	L.F.	13	2,600
Dumped Stone	500	C.Y.	22	11,000
Traffic Control	1	JOB	L.S.	9,800
SUBTOTAL				$75,200
CONTINGENCIES				14,800
TOTAL CONSTRUCTION COST				**$90,000**
ENGINEERING & DESIGN				39,200
SUPERVISION & ADMINISTRATION				5,800
TOTAL PROJECT FIRST COST				**$135,000**

PROJECT COST SHARE

TOTAL NON-FEDERAL COST (25%)	$34,000
TOTAL FEDERAL COST (75%)	$101,000

ANNUAL COST

Interest & Amortization (25 years @ 8-3/4%)	$13,500
Operation & Maintenance	500
TOTAL ANNUAL COST	$14,000

Cost sharing requirements include a 25 percent contribution of project costs by non-Federal interests, including necessary lands, easements and right-of-ways. With the total project first cost estimated at $135,000, the non-Federal share of the first cost is currently estimated at $34,000, subject to change depending on the actual construction bid price for the project. The total annual cost of $14,000 is computed using a project life of 25 years and an interest rate of 8-3/4 percent with an annual operation and maintenance cost estimated at $500.

VIII ESTIMATES OF BENEFITS & BENEFIT - COST RATIO

Economic benefits due to project construction are based on comparison of the "with" and "without" project conditions. Should the embankment be left as is, erosion would continue, leading to eventual undermining and failure of the highway and bridge.

Benefits as derived for the selected project are those recurring costs for temporary highway embankment repair, road and utilities repair, and traffic detour which would be avoided by preventing eventual highway damage with the construction of permanent erosion protection. Benefits are also derived by avoiding the cost of repairing the bridge. In the "without project" condition, it is assumed that Route 1A would wash out every 3 years on the average after the first year. This would cause a 5.2 mile detour for vehicles using Route 1 to Cherryfield as an alternate route. The State of Maine Department of Transportation reported that about 1920 vehicles per day use Route 1A in Milbridge. Benefits are derived from detour cost savings, over a 3 1/2 day period, while the highway was being repaired.

1920 vehicles per day X 5.2 mi. X 24.5 cents per mi. X 3.5 days = $8,550 per event

The estimated detour cost per event (washout) was determined to be $8,550. After each highway washout, the town and/or State would incur costs associated with providing emergency bank stabilization, performing repairs to the road and utilities as well as the emergency crew costs. These costs combined with the associated detour costs are estimated at $47,000 per washout. The estimated one time cost to repair the bridge abutment is $100,000.

Repair work to the embankment, road and bridge abutment represents emergency type construction and would only provide a temporary solution. Construction repair would be performed on an emergency need basis and only where a direct threat to the highway and/or bridge abutment exists. Temporary repair does not provide a permanent solution to the erosion problem. The emergency construction performed on the Route 1A embankment is expected to last about 3 years before erosive forces of the Narraguagus River undermines the protection as well as further erosion of the unprotected banks. As a result of this future erosion, more extensive emergency highway and bridge repairs will be required. Under these circumstances, and during the 25 year economic life of the selected plan, emergency erosion repairs would have to be accomplished 9 times under a without project condition.

Amortized these emergency costs over the selected plan's economic life, annual benefits equate to the cost of avoiding recurring damages, (ie. temporary bank stabilization and associated costs) with the 'without project' condition, are estimated at $17,400. In addition, annual benefits derived from avoiding the cost of repairing erosion damaged bridge abutment within the next 5 years are estimated at $6,600. Consequently, the total annual benefits derived from avoiding the costs of damages to the highway embankment and bridge abutment are estimated at $24,000. Table 3 illustrates the summary of preventable costs incurred during each washout event associated with the 'without project' condition.

TABLE 3

SUMMARY OF PREVENTABLE COSTS

NARRAGUAGUS RIVER / MILBRIDGE, MAINE

PREVENTABLE DAMAGES	ESTIMATED REPAIR COSTS
(3 yr. recurrence interval)	
BANK STABILIZATION	$ 30,350
ROAD REPAIR & UTILITIES	3,800
DETOUR COSTS	8,550
EMERGENCY CREW COSTS	4,300
	$47,000
(One occurrence within 5 years)	
BRIDGE ABUTMENT REPAIR	$100,000

ANNUAL BENEFITS

Temporary Bank Stabilization & Associated Costs (3-yr. recurrence interval; 8- 3/4%, Federal Interest Rate)	$ 17,400
Bridge Abutment Repair (One occurrence at yr. 5; 8-3/4%, Federal Interest Rate)	6,600
TOTAL ANNUAL BENEFIT	**$ 24,000**

Table 4 compares annual costs for alternative streambank protection projects. The plan that maximizes net National Economic Development benefits (the NED plan), is the stone slope revetment project.

TABLE 4

COST COMPARISONS BETWEEN SELECTED PLAN & OTHER ALTERNATIVES
NARRAGUAGUS RIVER / MILBRIDGE, MAINE

PLAN	ANNUAL COST	ANNUAL BENEFITS	BENEFIT-COST RATIO	NET BENEFITS
STONE REVETMENT	$14,000	$24,000	1.7	$10,000
TIMBER CRIB WALL	$16,500	$24,000	1.4	$ 7,500
CONCRETE WALL	$18,000	$24,000	1.3	$ 6,000

The annual cost of the stone slope protection is $14,000 compared with the annual benefit of $24,000, the ratio of benefits-to-costs is 1.7 to 1.0 and the net benefits are equal to $10,000.

IX ENVIRONMENTAL CONSIDERATIONS

An extensive public involvement process has been carried out throughout this study. Through correspondence, informal and formal discussions, and field trips involvement of non-Corps interests has had a effect on the directions taken by the study as it progressed toward development of a technical feasible, economically and environmentally acceptable, implementable plan.

No significant environmental long term adverse effects are expected to occur during or after construction of the erosion protection project. Construction activities will probably cause some increased turbidity in the Narraguagus River for a short period, but should have no permanent effect on water quality. The following comments of Federal and State Agencies have been made prior to the completion of this report:

- The U.S. Environmental Protection Agency believes, that the proposed project will not have long term significant adverse damage to the riverine environment, provided that the project's construction takes place in the early spring or fall.

- The Maine Historic Preservation Commission has stated that theproposed project is in accordance with Section 106 of the National Historic Preservation Act, and has found that the selected plan will have no adverse effect upon the immediate area.

Completed coordination with relevant state and Federal agencies indicate no significant effect on fish and wildlife habitat is expected provided that the project's construction takes place in the early spring or early fall. The Draft DPR, and the Environmental Assessment with a Finding of No Significant Impact (FONSI) which accompany it, all reflect the issues that have been raised by local, State and Federal interests. For a more detailed discussion of the environmental effects of the recommended project, see the attached 'Environmental Assessment'.

The findings of this DPR have been circulated to public agencies and to the public for review and comment. The Division Engineer issued the Public Notice announcing his study findings and recommendations. Once the Public Notice review and comment period is completed, the Division Engineer will send the final DPR and supporting information, including agency and public comments and responses, to the Corps' Washington Office of the Chief of Engineers, for approval to initiate plans and specifications. Plans, specifications, and a detailed estimate will be completed prior to the advertising for bids and awarding of the construction project.

X REQUIREMENTS OF LOCAL COOPERATION

The State of Maine Department of Transportation (MDOT) is the non-Federal sponsor for the proposed project. The DPR's recommendations have been discussed with officials from the MDOT. The Commissioner of MDOT, by virtue of a letter dated 6 June 1991 (see Enclosure 1), fully supports the proposed project, and has indicated his department's willingness and ability to provide items of local cooperation including cost sharing.

A draft Local Cooperation Agreement (LCA) has been reviewed by the non-Federal sponsor and is understood. Satisfactory written assurances of local cooperation will be obtained by the Federal Government prior to requesting funds for construction of an approved project. Such assurances do not commit the Federal Government to construction of the project.

XI CONCLUSIONS

It is concluded that construction of stone slope revetment will provide erosion protection along the Narraguagus River bank, thus preventing the failure of Route 1A and damage to a bridge abutment. The selected plan provides a technically sound solution, complete within itself and acceptable to the non-Federal sponsor. Moreover, the selected plan provides the maximum net benefits at $10,000 and is therefore the NED plan. The estimated total non-Federal cash contribution required for construction of this project is $34,000.

XII RECOMMENDATIONS

I recommend that this report be approved as the basis for preparation of plans and specifications for construction of the selected plan described herein under authority contained in Section 14 of the 1946 Flood Control Act, as amended. It is further requested that the New England Division, Division Engineer be designated the authority to approve construction plans and specifications.

Recommendations contained reflect the information available at this time and current Departmental policies governing formulation of individual projects. They do not reflect program and budgeting priorities inherent in the formulations of a national Civil Works construction program nor the perspective of higher review levels within the Executive Branch. Consequently, the recommendations may be modified before they are transmitted for authorization and/or implementation funding. However, prior to transmittal, the sponsor, the state, the interested Federal agencies, and other parties will be advised of any modifications and will be afforded an opportunity to comment further.

19 Jun 91
Date

Philip R. Harris
Colonel, Corps of Engineers
Division Engineer

XIII ACKNOWLEDGEMENTS

This report was prepared by the New England Division, U.S. Army Corps of Engineers, under the general direction of Colonel Philip R. Harris, Division Engineer. It was prepared by Mr. Robert Russo and Mr. Wendell Mah, Project Managers, under the supervision of Mr. F. William Swaine, Chief, Project Development Branch and Mr. Joseph L. Ignazio, Director of Planning.

Members of the Study Team Include:

Mr. Edward O'Leary, Impact Analysis Division
Ms. Kate Atwood, Impact Analysis Division
Mr. Michael Penko, Impact Analysis Division
Mr. Paul Schimelfenyg, Geotechnical Engineering Division
Mr. Ben Piteo, Design Division
Ms. Deborah Greason, Water Control Division
Mr. Chris Lindsay, Cost Engineering Branch

This report was prepared by Mrs. Judy Antonellis and Mr. Robert Bentham.

ENVIRONMENTAL ASSESSMENT

AND

FINDING OF NO SIGNIFICANT IMPACT

SECTION 14 STREAMBANK PROTECTION PROJECT

ROUTE 1A (BRIDGE STREET)

NARRAGUAGUS RIVER

MILBRIDGE, MAINE

Prepared by:

Michael Penko
(Biologist)

and

Kathleen Atwood
(Archaeologist)

April 1991

New England Division
U.S. Army Corps of Engineers
Waltham, Massachusetts

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I. INTRODUCTION

A. Purpose and Need

This report assesses the potential environmental effects of a proposed emergency shoreline protection project along a section of the Narraguagus River in Milbridge, Maine. Streambank erosion at the site is threatening a public highway and a bridge, and local authorities have enlisted the Corps to find an effective solution to the problem. Several alternatives were considered, and it was determined that construction of rock revetment protection at the site is the most suitable option (see accompanying Detailed Project Report, DPR).

B. Project Authority

This study was conducted under continuing authority contained in Section 14 of the 1946 Flood Control Act (as amended). The Section 14 Program authorizes the Corps of Engineers to plan and construct emergency streambank protection projects in order to protect public facilities.

C. Site Location and Problem Description

The project is located in northeastern Maine, along the Narraguagus River in the village of Milbridge (see Plate 1 in DPR). Streambank erosion at the site is threatening a short section of Maine State Highway Route 1A and a bridge abutment. The erosion has undermined the highway shoulder, and will eventually cause the road to fail unless remedial action is taken. Loss of the roadway would result in a 5 mile (minimum) detour for Route 1A traffic. Erosion at the site is primarily caused by tidal fluctuations. Storm water runoff and ice action also contribute to the problem.

II. PROJECT DESCRIPTION

A. Selected Plan

The proposed project would stabilize a 150 ft. reach of the Narraguagus River in Milbridge, Maine. The erosion site is located directly upstream from the southernmost Route 1A bridge (see Plate 2 in DPR). The existing embankment would be cleared of vegetation, grubbed, and replaced with rock revetment. The lower slope of the revetment would consist of 2.5 ft. thick stone protection underlain by a 1 ft. thick layers of stone and gravel bedding, and a 0.5 foot thick layer of sand bedding, all graded at a 1:2.5 vertical to horizontal (v:h) slope (see Plate 3 in DPR). The upper slope would consist of seeded topsoil underlain by granular fill graded at a ca. 1:2.5 slope. The work would take about 1 month to complete.

B. Alternative Plans and Protection Measures

1. No Action

If no action is taken at the site, erosion will continue, and eventually cause the Route 1A embankment to fail. Failure of the road would result in a 5 mile (minimum) detour via Cherryfield It is assumed that the road would fail approximately every three years, and that during each failure traffic would be detoured for 3.5 days while repair work was underway (see DPR).

2. Relocation of Route 1A

It would be possible to relocate Route 1A east of its present location. This alternative would be prohibitively expensive, however, and would require filling of a substantial amount of intertidal habitat. An existing home would also have to be relocated.

3. Alternative Protection Measures

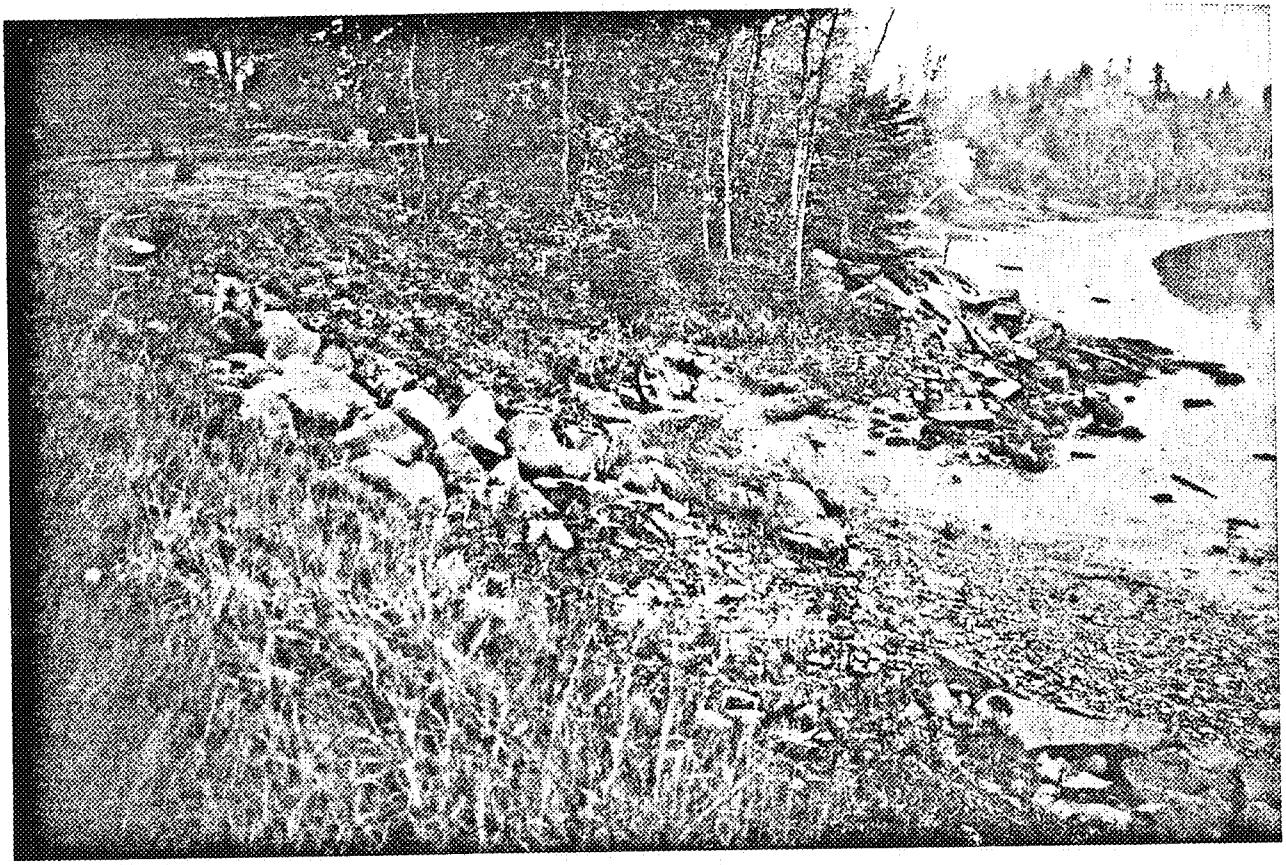
Construction of a gabion (stone filled wire baskets), a timber crib wall, or a concrete modular block wall to protect the Route 1A embankment were also considered. Use of a gabion was rejected due to concerns that ice would damage the wire baskets. A timber crib wall and modular block wall would provide effective protection, but were rejected because they were more expensive than rock revetment (see DPR).

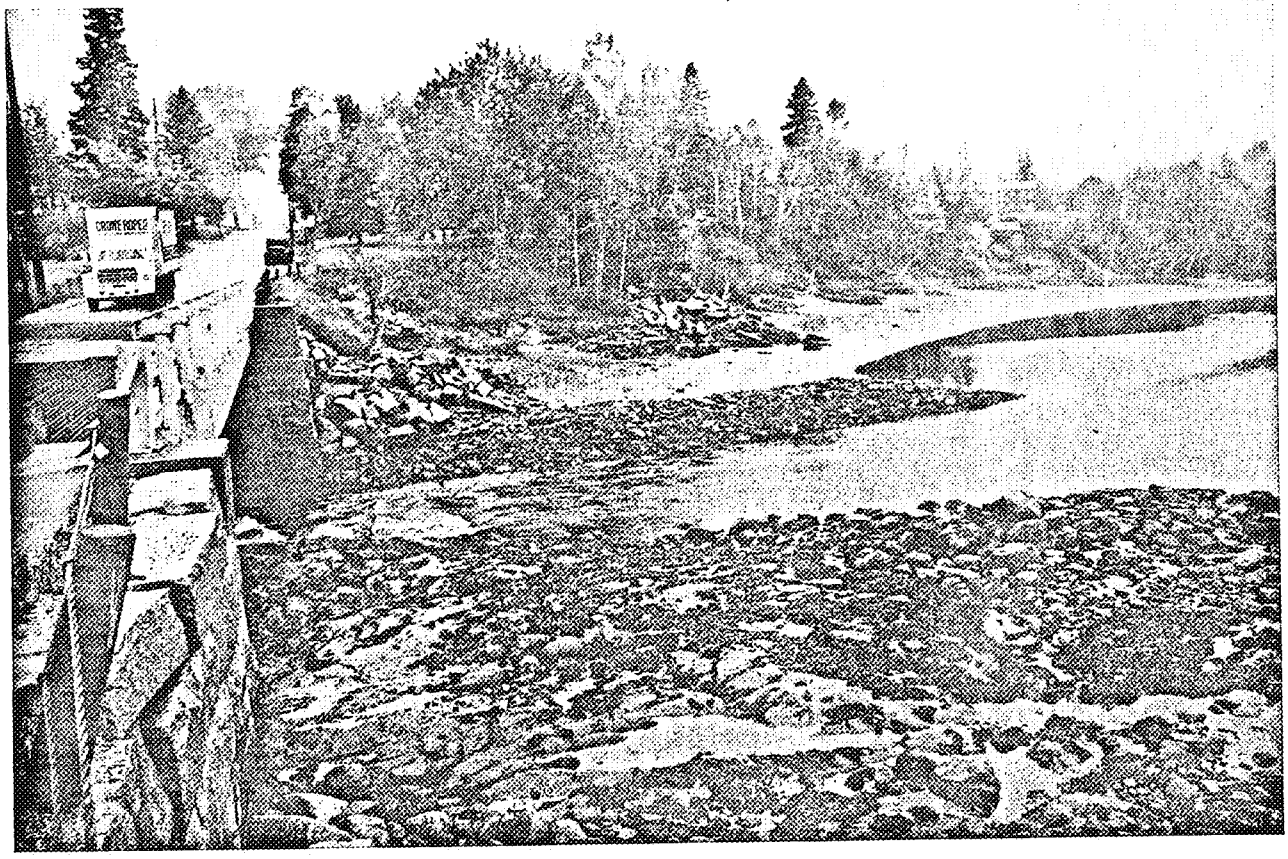
III. ENVIRONMENTAL RESOURCES

A. Physical Setting

Milbridge is located along the Maine Coast, about 20 miles northeast of Bar Harbor (see Plate 1 in DPR). The erosion site is located about 1.5 miles upstream of the mouth of the Narraguagus River. The site is situated along the south side of the river, just upstream of the southernmost Route 1A bridge. The site extends from the bridge abutment upstream for about 150 feet to a large pile of dumped stone. The existing embankment is about 20 to 25 feet high, with slopes ranging from about 1:2 (vertical on horizontal) within 5 60 ft of the bridge, to about 1:1.5 to 1:2 further upstream. The embankment is vegetated with grasses, herbs, and a few low shrubs.

The Narraguagus River ranges in width from about 1000 to 1500 feet near the erosion site. Flow at the Route 1A bridges, however, is constricted through two narrow channels with a total width of about 500 feet. The river is tidally influenced at the project site, and has a mean tidal range of 11.2 feet above the national Geodetic Vertical Datum (NGVD). The base of the embankment is slightly below mean high water (see Plates 3 and 4 in DPR). The intertidal zone adjacent to the site is about 30 to 40 feet wide and is largely unvegetated (see Photographs 1 and 2). Exposed intertidal sediments range





from clay to coarse sands and gravel. A large gravel bar with some cobble is present along the edge of the low flow channel (see Photograph 2). The state has placed a few large rocks along the base of the embankment in an attempt to stem erosion. Extensive tidal mudflats are present both upstream and downstream of the site.

Uplands near the project site are moderately developed. Several homes are situated within about 300 feet of the site. The river bank south of the site is forested (see Photograph 1).

Northeastern coastal Maine has a northern temperate climate. Mean daily high temperatures in nearby Bar Harbor range from about 32°F in January to 78°F in July (Fefer et al., 1980). Mean annual precipitation is about 44 inches, with average monthly values ranging from about 3 inches in June, July and August, to about 6 inches in November. Winds are primarily from the northeast in winter and south in summer. Ice is usually present in the Narraguagus River estuary during part of the winter.

B. Water Quality

The water quality of the Narraguagus River in the project area is designated class "SB" by the State of Maine. Maine water quality standards define "SB" waters as being suitable for recreation, fishing aquaculture, propagation and harvesting of shellfish, industrial uses, and as habitat for fish and other estuarine marine life. Standards for "SB" waters require that discharges not result in detrimental changes in the resident biological community.

C. Biological Resources

1. Fish

Estuarine waters in northeastern Maine support a diverse finfish community (Shettig, et al., 1980). Common marine species likely to occur in the Narraguagus River estuary include Atlantic herring, winter flounder, American plaice, Atlantic cod, haddock, Atlantic tomcod, American pollock, ocean pout, skates, wrymouth, white perch, sticklebacks, and Atlantic silversides. Many of these species move offshore as water temperature decline in the fall, and over winter in deeper waters. Anadromous species present in the river include Atlantic salmon, shad, alewife, blueback herring, rainbow smelt, and striped bass. American eel, a catadromous species, is also present.

Peak runs of anadromous fish occur in the Narraguagus River from about April 1 through early July (Ken Beland, pers. commun.). Smelt run primarily in April. Juvenile Atlantic salmon migrate downstream in late April and May. Shad, alewife, and blueback herring migrate upstream in May and return downstream in June. Adult Atlantic salmon migrate upstream primarily from late May through June. A secondary upstream migration occurs from mid September through mid October. Some Atlantic salmon migrate downstream soon after spawning in late October or November. Others over winter in the river after spawning and migrate downstream in late April. All anadromous species spawn in freshwater, well upstream of the project area.

2. Shellfish and Other Invertebrates

Softshell clams are present in intertidal sediments at the project area, but are not abundant, and not harvested commercially (Jay, McGowan, pers. commun.). Other invertebrates noted at the site include clamworms (Nereis virens), other polychaetes, periwinkles, mussels, barnacles, and gammarid crustaceans.

3. Vegetation

A small (ca. 8 ft x 15 ft) stand of Spartina alterniflora is present at the base of the embankment. The Spartina stand appears to be actively eroding due to wave action. Black rush and seaside goldenrod were also noted growing at the base of the embankment. Some rock weed (Fucus sp.) is present at lower intertidal elevations.

Plants noted growing on the embankment include grasses, raspberry, beach rose, golden rod, New York aster, meadow-sweet (Spirea latifolia), red clover, vetch, white birch, willow, and spruce. Herbaceous cover on the embankment is nearly 100 percent. Woody cover is about 10 percent.

4. Wildlife

The project site is located within an area designated as a "Class B Wildlife Concentration Area" by the State of Maine Department of Inland Fisheries and Wildlife (see January 23, 1991 memo by Tom Schaeffer in Appendix A). The area provides important habitat for a variety of nesting and migratory shorebirds, waterfowl, gulls, and raptors. Shorebirds likely to utilize intertidal habitat at or near the project site include semi-palmated sandpipers, semi-palmated plovers, spotted sandpipers, spotted sandpipers, black-bellied plovers, dowitchers, least sandpipers, ruddy turnstones, and greater yellowlegs. Overall, however, the habitat value of the project site relative to other areas in the estuary is low (Tom Schaeffer, pers. commun.).

Waterfowl likely to occur near the project area include mallards, black ducks, goldeneyes, buffleheads, mergansers, and eiders. Other birds likely to occur in the area include gulls, great blue heron, double-crested cormorants, marsh hawks, and osprey. Bald eagles utilize the general area for foraging, but are not likely to occur at the project site. The closest known bald eagle nesting sites are on Strout Island and Shipstern Island in Harrington, about 3-4 miles from the project site (Tom Schaeffer, pers. commun.).

There is a large harbor seal population in the Narraguagus River estuary, and up to 30-40 harbor seals may forage near the bridge abutments during spring anadromous fish runs (Ken Beland, pers. commun.).

Vegetation growing on the embankment provides marginal habitat for small mammals and songbirds. Lack of substantial woody cover and close proximity to Route 1A greatly limits the site's habitat value. Birds most likely to occur include the common grackle and sparrows. Blue jay, chickadees, morning doves, and other birds typical of semi-developed areas are likely to occur in forested areas near the project site. Small mammals likely to inhabit the site include mice and voles. Others such as raccoon and cottontail may occasionally occur at the site as transients.

5. Threatened and Endangered Species

Except for occasional transients, no threatened or endangered species are known to occur in the project area (see December 17, 1991 letter from Gordon Beckett, U.S. Fish and Wildlife Service, and January 18, 1991 letter from Richard Row, National Marine Fisheries Service, and April 16, 1991 from Francie Smith, Maine Natural Heritage Program).

D. Cultural Resources

The proposed project area was extensively disturbed by construction of the bridge and Route 1A. A drainage ditch bisects the proposed project area, causing further disturbance. The area south of the drainage ditch however, appears to have been relatively undisturbed by construction activities, although it has been severely affected by erosion. This area could have prehistoric site potential. However, construction of the revetment would stabilize the riverbank and stop the erosion at this area.

E. Socio-Economic Resources

Milbridge has a permanent, year round population of about 1300. The local economy is largely based on the fishing industry. Boats based in Milbridge fish for primarily for lobsters, groundfish, scallops, urchin, and shrimp. A sardine cannery in Milbridge, a blueberry processing factory in Cherryfield, and the summer tourism industry are other important components of the local economy.

IV. ENVIRONMENTAL CONSEQUENCES

A. Aquatic and Terrestrial Habitat

Construction of the proposed protection would alter about 6,000 square feet of coastal wetland habitat (as defined by Maine Wetland Protection Rules, 310.C.2). This estimate includes all habitat below the wrack line which would be altered by the project. About 2500 square feet of coastal habitat would be converted to upland. The other 3,500 square feet would remain intertidal habitat, but the existing substrate (sand, silt, gravel) would be replaced with rock.

Other viable protection measures (i.e. a timber-crib wall or precast modular retaining wall) would result in little or no loss of intertidal habitat, but would increase project cost (see DPR).

Upland habitat destroyed by construction of the revetment would be largely replaced by equivalent habitat (seeded topsoil) at the top of the revetment (see Plate 2 of DPR).

B. Water Quality

The proposed project would have no long-term impact on water quality in the Narraguagus River. Construction activities would, however, temporarily increase suspended solid concentrations in the river near the project area. Because of the modest scope of this project, and the generally coarse nature of existing sediments and fill material, this impact would be highly localized. Standard procedures would be employed to minimize erosion and sedimentation.

C. Biological Resources

The selected plan would alter about 6,000 square feet of intertidal habitat (see above). This loss represents a small fraction of the total available intertidal habit in the Narraguagus River estuary, and would have no significant long-term impact on fish or wildlife populations.

Construction activities would result in some minor short-term impacts to biota occurring at or near the project area. Placement of the revetment would destroy the existing benthic community at the site. Although softshell clams, clamworms, and other benthic infauna would not recolonize the area, the resulting rock revetment would provide excellent habitat for mussels, periwinkles, slipper shells, barnacles, and rockweed.

Turbidity and noise generated by construction activities could pose a minor disruption to spring anadromous fish runs. In order to avoid this potential impact, no construction would be permitted between April 1 and 15 July (see December 26, 1990 Memo from Ken Beland to Bob Blakesley in Appendix A, and April 9, 1991 letter from Chris Mantzaris, National Marine Fisheries Service).

Construction activities could disturb migratory shorebirds utilizing the site and nearby intertidal areas (Tom Schaeffer, pers. commun.). Although this impact would be minor, work will be scheduled after 15 September, if practicable.

The proposed revetment would destroy a small Spartina stand (ca. 120 square feet) and other vegetation growing near the embankment. No mitigation is proposed because of the small area lost, and because it is likely that continued erosion of the embankment would destroy the vegetation under without project conditions.

Construction of the revetment would result in the loss of existing terrestrial vegetation. This minor impact would be offset by replanting the upper slope with a mix of native grasses and herbs. The slope would not be mowed, and shrubs and small tress would be allowed to become established. Larger trees which threaten the integrity of the protection would be removed.

The proposed work would have no significant impact on Federally threatened or endangered species (see December 17, 1990 letter from Gordon Beckett, U.S. Fish and Wildlife Service, and January 18, 1991 letter from Richard Row, National Marine Fisheries Service). No impacts would occur to animals, plants, or natural communities that are considered rare, threatened, or endangered in Maine (see April 16, 1991 letter from Francie Smith, Maine Natural Heritage Program).

D. Cultural Resources

The proposed project area has been extensively disturbed by erosion and highway construction activities. Therefore, construction of the stone revetment should have no effect upon any structure or site of historic, architectural or archaeological significance as defined by the National Historic Preservation Act of 1966, as amended. The Maine State Historic Preservation Officer in a letter dated 31 January 1991, has concurred with this determination.

E. Socio-Economic Resources

Construction of the proposed project would preclude failure of the Route 1A embankment and subsequent hardships to individuals and communities dependant on the road. The selected plan is economically justified, and has a benefit to cost ratio of 1.7:1. Projected net annual benefits over the 25 year project life are $ 14,000 per year.

Construction activities would have a minor adverse impact on local traffic. Proper traffic control measures will be employed to minimize the disruption. Noise generated by construction equipment may disturb local residents living near the site. To minimize this impact, no work would be allowed to occur at night.

The projected construction cost of the selected plan ($135,000) would have an insignificant impact on the local economy.

V. ACTIONS TAKEN TO MINIMIZE ADVERSE ENVIRONMENTAL CONSEQUENCES

1. Construction impacts on water quality and aquatic life will be minimized by employing proper erosion and sedimentation control measures.

2. Construction equipment will avoid disturbing intertidal areas to the maximum practicable extent.

3. The upper slope of the revetment will be seeded with a suitable conservation mix.

4. No instream work will occur during peak runs of anadromous fish (mid April through July 15). Also, if practical, no instream work will occur between September 15 and October 15 to avoid disturbing the fall Atlantic salmon upstream migration. NED will notify the Maine Department of Marine Resources prior to any work in the river between September 15 and October 15.

5. The Corps or the local sponsor would apply for necessary permits under applicable state and local environmental laws and regulations (see Appendix B).

VI. REFERENCES

Fefer, S.I. et. al. 1980. The Coastal Ecosystem. In: "An Ecological Characterization of Coastal Maine". U.S. Fish and Wildlife Service. FWS/OBS-80/29. (vol 1).

Shettig,P.A. et. al. 1980. Fishes In: "An Ecological Characterization of Coastal Maine". U.S. Fish and Wildlife Service. FWS/OBS-80/29. (vol 3).

VII. COORDINATION

A. Letters Sent

Gordon Beckett (U.S. Fish and Wildlife Service Region V)

December 10, 1990: requested comments pursuant to the Fish and Wildlife Coordination Act and Endangered Species Act

Douglas Thompson (U.S. Environmental Protection Agency, Region I)

December 10, 1990: requested general comments on the project

Douglas Beach (National Marine Fisheries Service)

December 10, 1990: requested comments pursuant to the Endangered Species Act

Thomas Bigford (National Marine Fisheries Service)

December 10, 1990: requested comments pursuant to the Fish and Wildlife Coordination Act

Robert Blakesly (Maine State Planning Office)

December 10, 1990: requests comments from Maine resource agencies

Earle Shettleworth (Maine Historic Preservation Commission)

January 15, 1990: requested comments pursuant Section 106 of the National Historic Preservation Act

B. Letters Received (see also the Appendix A)

Gordon Beckett (U.S. Fish and Wildlife Service Region V)

December 17, 1990: indicated that no threatened or endangered species are known to exist in the project area, suggested that construction activities should avoid the Atlantic salmon spawning season (15 October through 15 November)

January 9, 1991: indicated that the proposed project would have no adverse impacts on fish or wildlife populations

Chris Mantzaris (National Marine Fisheries Service)

April 9, 1991: suggested seasonal windows for conducting in-water work

Richard Roe (National Marine Fisheries Service)

January 18, 1991: indicated that no threatened or endangered species under NMFS jurisdiction are known to occur in the project area

Earle Shettleworth (Maine State Historic Preservation Commission)

January 31, 1991: indicated that there are no properties of historic, architectural, or archaeological significance in the project area

Francie Smith (Maine Natural Heritage Program)

April 16, 1991: indicated that no rare or endangered species occur in the project area

State of Maine Inter-Departmental Memoranda

December 26, 1990 (Ken Beland): suggested that no construction occur between April 1 and July 4 to avoid impacting anadromous fish runs.

January 23, 1991 (Tom Schaeffer): provided information about wildlife resources in the project area.

B. Personal Communications

Ken Beland (Maine Atlantic Sea Run Salmon Commission)

October 3, 1990: provided information about anadromous fish resources of the Narraguagus River

April 4, 1991: provided additional information about anadromous fish resources of the Narraguagus River; indicated that an April 1 through July 4 window was adequate to protect runs, indicated that no window was necessary to protect adult Atlantic salmon migrating downstream in the fall

Lou Flagg (Maine Dept. of Marine Resources)

April 29, 1991: explained rational for seasonal restrictions discussed in NMFS letter dated April 9, 1991. Indicated that a fall window (Sept. 15 - Oct. 15) window to protect upstream migrating Atlantic salmon was desirable, but not mandatory.

Jay McGowan and Clark Clifford (Maine Dept. of Marine Resources)

October 11, 1990: coordinated site visit with the NED project team

Tom Schaeffer (Maine Dept. Inland Fisheries Wildlife)

October 10, 199): indicated that closest known eagle nests to site are several miles away

April 8, 1991: suggested that work not occur in July, August, or first two weeks of September in order to minimize disturbance to shorebirds; indicated that the work site is not prime shore-bird habitat

VIII. COMPLIANCE WITH FEDERAL ENVIRONMENTAL STATUTES, EXECUTIVE MEMORANDUM, AND EXECUTIVE ORDERS

Federal Statutes

1. Preservation of Historic and Archaeological Data Act of 1974, as amended, 16 U.S.C. 469 et seq.

Compliance: Consultation with the State Historic Preservation Office and the Advisory Council on Historic Preservation concerning mitigation of historic and/or archaeological resources signifies compliance.

2. Clean Air Act, as amended, 42 U.S.C. 7401 et seq.

Compliance: Public notice of the availability of this report to the Environmental Protection Agency signifies compliance pursuant to Sections 176c and 309 of the Clean Air Act

3. Clean Water Act of 1977 (Federal Water Pollution Control Act Amendments of 1972) 33 U.S.C. 1251 et seq.

Compliance: A Section 404(b)(1) Evaluation and Compliance Review have been incorporated into this report. An application shall be filed for State Water Quality Certification pursuant to Section 401 of the Clean Water Act.

4. Coastal Zone Management Act of 1972, as amended, 16 U.S.C. 1431 et seq.

Compliance: A CZM consistency determination shall be provided to the State for review and concurrence that the proposed project is consistent with the approved State CZM program.

5. Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 et seq.

Compliance: Coordination with the U.S. Fish and Wildlife Service (see letter dated December 17, 1990) and the National Marine Fisheries Service (see letter dated January 18, 1991) has yielded no formal consultation requirements pursuant to Section 7 of the Endangered Species Act.

6. Estuarine Areas Act, 16 U.S.C. 1221 et seq.

Compliance: Not applicable.

7. Federal Water Project Recreation Act, as amended, 16 U.S.C. 4601-12 et seq.

Compliance: Public notice of the Availability of this report to the National Park Service (NPS) and the Office of Statewide Planning relative to the Federal and State comprehensive outdoor recreation plans signifies compliance with this Act.

8. Fish and Wildlife Coordination Act, as amended, 16 U.S.C. 661 et seq.

Compliance: Coordination with the U.S. FWS, NMFS, and State of Maine resource agencies signifies compliance with the Fish and Wildlife Coordination Act.

9. Land and Water Conservation Fund Act of 1965, as amended, 16 U.S.C. 4601-4 et seq.

Compliance: Public notice of the availability of this report to the National Park Service (NPS) and the Office of Statewide Planning relative to the Federal and State comprehensive outdoor recreation plans signifies compliance with this Act.

10. Marine Protection, Research, and Sanctuaries Act of 1972, as amended, 33 U.S.C. 1401 et seq.

Compliance: Not Applicable.

11. National Historic Preservation Act of 1966, as amended, 16 U.S.C. 470 et seq.

Compliance: Coordination with the State Historic Preservation Office and Advisory Council on Historic Preservation determined that no historic or archaeological resources would be affected by the proposed project (see January 31, 1991 letter from Earle Shettleworth).

12. National Environmental Policy Act of 1969, as amended, 42 U.S.C. 4321 et seq.

Compliance: Preparation of this report signifies partial compliance with NEPA. Full compliance shall be noted at the time the Finding of No Significant Impact is issued.

13. Rivers and Harbors Act of 1899, as amended, 33 U.S.C. 401 et seq.

Compliance: No requirements for Corps' projects or programs authorized by Congress. The proposed shoreline stabilization project is pursuant to the Congressionally-approved continuing authority program: Section 14 of the 1946 Flood Control Act.

14. Watershed Protection and Flood Prevention Act, as amended, 16 U.S.C. 1001 et seq.

Compliance: Not applicable.

15. Wild and Scenic Rivers Act, as amended, 16 U.S.C. 1271 et seq.

Compliance: Not Applicable.

Executive Orders

1. Executive Order 11988, Floodplain Management, 24 May 1977 amended by Executive Order 12148, 20 July 1979.

Compliance: Not Applicable.

2. Executive Order 11990, Protection of Wetlands, 24 May 1977.

Compliance: Circulation of this report for public review fulfills the requirements of Executive Order 11990, Section 2(b).

3. Executive Order 12114, Environmental Effects Abroad of Major Federal Actions, 4 January 1979.

Compliance: Not Applicable.

Executive Memorandum

1. Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing NEPA, 11 August 1980.

Compliance: Not Applicable.

APPENDIX A

LETTERS RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
400 RALPH PILL MARKETPLACE
22 BRIDGE STREET
CONCORD, NEW HAMPSHIRE 03301-4901

December 17, 1990

Joseph Ignazio
Chief, Planning Division
U.S. Army Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254

ATTN: Impact Analysis Branch

Dear Mr. Ignazio:

This responds to your letters dated December 10 and 12, 1990 for information on the presence of Federally listed and proposed, endangered or threatened species in accordance with two proposed Section 14 emergency streambank protection projects in Maine. The first is stone revetment of 200 feet of the Machias River in Machiasport along Route 92; and the second is 150 feet of stone revetment adjacent to the Narraguagus River in Milbridge along Route 1A.

Based on information currently available to us, no Federally listed or proposed, threatened and endangered species under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project areas. Several bald eagle nests occur within five miles of the Machiasport project location but all are distant enough to be unaffected by the proposed work. However, this review is based on nest site data from the 1989 breeding season and we suggest that you contact Steve Timpano of the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333, at 207-289-3286, for current information on the bald eagle and other state-listed species that may be present.

Recently, the Fish and Wildlife Service recommended that declining native stocks of Atlantic salmon (Salmo salar) in five Maine rivers be added to the Notice of Review for species considered candidates for possible future listing under the Endangered Species Act. These populations include the Dennys, Machias, East Machias, Narraguagus, and Pleasant Rivers. With this in mind, we recommend that these projects be scheduled to occur in August, during low water to minimize sedimentation, turbidity and disturbance from construction activities. This scheduling will also avoid work in the rivers during the fall salmon spawning period of October 15 - November 15. While Federal candidate species are not afforded protection under the Endangered Species Act, the U.S. Fish and Wildlife Service encourages their consideration in environmental planning. If unnecessary impacts to candidate species can be avoided, the likelihood that they will require the protection of the Act in the future is reduced.

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN MAINE

Common Name	Scientific Name	Status	Distribution
FISHES:			
Sturgeon, shortnose*	Acipenser brevirostrum	E	Kennebec River & Atlantic Coastal Waters
REPTILES:			
Turtle, leatherback*	Dermochelys coriacea	E	Oceanic summer resident
Turtle, loggerhead*	Caretta caretta	T	Oceanic summer resident
Turtle, Atlantic ridley*	Lepidochelys kempii	E	Oceanic summer resident
BIRDS:			
Eagle, bald	Haliaeetus leucocephalus	E	Entire state-nesting habitat
Falcon, American peregrine	Falco peregrinus anatum	E	Entire state-reestablishment to former breeding range in progress
Falcon, Arctic peregrine	Falco peregrinus tundrius	E	Entire state migratory-no nesting
Plover, Piping	Charadrius melodus	T	Atlantic coast
Roseate Tern	Sterna dougallii dougallii	E	Atlantic coast
MAMMALS:			
Cougar, eastern	Felis concolor couguar	E	Entire state-may be extinct
Whale, blue*	Balaenoptera musculus	E	Oceanic
Whale, finback*	Balaenoptera physalus	E	Oceanic
Whale, humpback*	Megaptera novaeangliae	E	Oceanic
Whale, right*	Eubalaena spp. (all species)	E	Oceanic
Whale, sei*	Balaenoptera borealis	E	Oceanic
Whale, sperm*	Physeter catodon	E	Oceanic
MOLLUSKS:			
NONE			
PLANTS:			
Small Whorled Pogonia	Isotria medeoloides	E	York, Kennebec, Cumberland, Oxford Counties
Lousewort, Furbish's	Pedicularis furbishiae	E	Aroostook County
Orchid, Eastern prairie fringed	Platanthera leucopehaea	T	Aroostook County

* Except for sea turtle nesting habitat, principal responsibility for these species is vested with the National Marine Fisheries Service

Rev. 4-4-90

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
400 RALPH PILL MARKETPLACE
22 BRIDGE STREET
CONCORD, NEW HAMPSHIRE 03301-4901

Mr. Joseph L. Ignazio, Chief
Planning Directorate
Impact Analysis Division
Corps of Engineers
424 Trapelo Road
Waltham, MA 02254-9149

January 9, 1991

Dear Mr. Ignazio:

This letter is in response to your request for comments on a Section 14 emergency streambank protection project along the Narraguagus River in Milbridge, Maine. The proposed project involves the construction of stone revetment along 150 linear feet of the Narraguagus River to protect the bank from ongoing erosion. About 5,000 square feet of intertidal and riverine habitat would be altered by the project. The following comments are provided pursuant to the Fish and Wildlife Coordination Act (48 stat. 401, as amended; 16 U.S.C. 661 et seq.)

We have reviewed the project proposal for impacts to fish and wildlife resources and their associated habitats. As currently designed, we do not believe that the project would have any adverse impacts on fish or wildlife populations. Should project plans change in the future, please contact our Maine office at (207) 581-3676 for additional coordination.

Sincerely yours,

for Gordon E. Beckett
Supervisor
New England Field Offices

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Region
One Blackburn Drive
Gloucester, MA 01930

JAN 18 1991

Mr. Joseph L. Ignazio, Chief
Planning Division, NED
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254-9149

Dear Mr. Ignazio:

This is in response to your letter of December 10, 1990, regarding the presence of endangered or threatened species in the vicinity of the Narraguagus River in Milbridge, Maine. We have reviewed the emergency streambank protection project location and have determined that there are no endangered or threatened species under our jurisdiction in the vicinity.

There is no need for further consultation pursuant to Section 7 of the Endangered Species Act of 1973, as amended, at this time. Should project plans change or new information become available that changes the basis for this determination, then consultation should be reinitiated.

Sincerely,

Richard B. Roe
Regional Director

MAINE HISTORIC PRESERVATION COMMISSION
55 Capitol Street
State House Station 65
Augusta, Maine 04333

Earle G. Shettleworth, Jr.
Director

Telephone:
207-289-2133

January 31, 1991

Joseph L. Ignazio, Director of Planning
Department of the Army
New England Division, Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254-9149

Dear Mr. Ignazio:

In response to your recent request, I have reviewed the proposed streambank/shoreline erosion protection project along Route 1A in Milbridge, Maine.

I find that there are no properties in the project area of historic, architectural, or archaeological significance as defined by the National Historic Preservation Act of 1966.

If I can be of further assistance concerning this matter, please do not hesitate to let me know.

Sincerely,

Earle G. Shettleworth, Jr.
State Historic Preservation Officer

EGS/slm

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

April 4, 1991

Mr. Joseph L. Ignazio, Chief
Planning Division
U.S. Army Corps of Engineers
New England Division
424 Trapelo Road
Waltham, MA 02254-9149

Dear Mr. Ignazio:

This is in response to a public notice requesting comments regarding a Section 14 emergency steambank protection project along the Narraguagus River in Milbridge, Maine.

The proposed project consists of the placement of approximately 150 linear feet of stone revetment along the Narraquagus River. The project is intended to protect a section of Route 1A from ongoing bank erosion.

Review of the project report indicates that we do not anticipate any long term significant adverse damage to either the terrestrial or within the riverine environment provided the project takes place in the early spring or early fall.

Thank you for the opportunity to comment on this project. If there is any further need to contact this office, please contact Mr. Melvin P. Holmes of my staff at (617) 565-4433.

Sincerely,

Douglas A. Thompson, Chief
Wetland Protection Section

cc: NMFS, Gloucester, MA
USF&WS, Concord, NH
DMR, Augusta, ME
Ronald G. Manfredonia, Chief WQB

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Region
Habitat and Protected Resources
Division
One Blackburn Drive
Gloucester, MA 01930-2298

April 9, 1991

Joseph L. Ignazio
New England Division
Corps of Engineers
424 Trapelo Road
Waltham, Massachusetts 02254-9149

Dear Mr. Ignazio:

This is in response to your letter of December 10, 1990 requesting comments on the proposed emergency streambank protection project along the Narraguagus River in Milbridge, Maine.

The Narraguagus River is host to many anadromous species of fish including Atlantic salmon, American shad, alewife, rainbow smelt, and American eel. The Maine Department of Marine Resources requests that in-water work in the river be done either between July 15 and September 15 or in the late fall beginning after the 15th of October.

We recommend that the proposed work abide by the stated time of year restrictions in order to minimize potential impacts to spawning fisheries. Please contact Nancy Haley at 508/281-9388 if you have any questions.

Sincerely,

Chris Mantzaris
Habitat Program Coordinator

John R. McKernan, Jr.
Governor

Lynn Wachtel
Commissioner

Kathryn J. Rand
Deputy Commissioner

Department
of
ECONOMIC AND COMMUNITY DEVELOPMENT
OFFICE OF COMPREHENSIVE PLANNING

16 April 1991

Michael Penko
Department of the Army
New England Division, Corps of Engineers
424 Trapelo Road
Waltham, MA 02254-9149

Re: Natural Heritage Program Review of Machias River Project and Milbridge Project

Dear Mike,

This letter is a follow up to our phone conversation of 11 April 1991, regarding the review of two Army Corps projects. I have checked our database for records of rare, endangered or other significant plants, animals, natural communities or geological features at or near the projects mentioned above.

We are not currently aware of any records for rare features on the Narraguagus River in Milbridge. The Program is also not aware of any surveys or inventory work to check for rare species and features at or near that project site.

There is one historical record known from the Machias River project area. Chenopodium rubrum, coast-blite goosefoot, was documented in Machiasport in 1947. This plant is state listed as Threatened in Maine. The herbarium label states that the specimen was taken from "...near the sardine factory in Machiasport". The species favors salt marshes and saline soils, and flowers in late summer. Once again, the Program is not aware of any recent field work in that area to search for rare species and features.

I hope this information is useful, please call if I can be of further assistance.

Sincerely,

Francie Smith

Francie Smith
Maine Natural Heritage Program

STATE OF MAINE
Maine Department of Inland Fisheries & Wildlife
Departmental Memorandum

January 23, 1991

To: Steve Timpano **Division:** Planning

From: Tom Schaeffer, Region C **Division:** Wildlife RMS

Subject: Proposed Narraguagus/Machias River Streambank Protection Projects

Proposals for emergency streambank protection projects on the Narraguagus and Machias Rivers have been reviewed for the occurrence of Significant Wildlife Habitats as defined under the Natural Resource Protection Act, Essential Habitats as provided under the Endangered Species Act Amendment, and other notable wildlife resource values.

The proposed Narraguagus River Streambank Project lies within an area designated as a Class B Coastal Wildlife Concentration Area based on a coastal inventory recently completed under the direction of this Department. This inventory identified those species utilizing the tidal basin north of the Route 1A bridge as including various gull species, great blue herons, waterfowl (black ducks, goldeneyes, and buffleheads), harbor seals, double-crested cormorants, ospreys, and bald eagles. Other species observed within the Class B Area that extends from the bridge south to Fickett Point and which could be expected to utilize the area including the project site include various species of gulls (herring, black-backed, laughing, and bonaparte's), various shorebirds including in part semi-palmated sandpipers, semi-palmated plovers, spotted sandpipers, black-bellied plovers, dowitchers, least sandpipers, ruddy turnstones, and greater yellowlegs), waterfowl (mallards, mergansers, eiders), terns, marsh hawks, and falcon (sp?). No known Significant Wildlife or Essential Habitats are identified within the immediate area of the project proposal.

Given the wildlife resource values associated with the immediate area of the project site on the Narraguagus River, we maintain concern for loss of intertidal/riverine habitats incurred by this project. We recommend an analysis of alternatives to minimize the project footprint and direct loss of these habitats. Further, we also recommend that project activities be conducted during summer months with a targeted completion date of September 1 to minimize disturbance to staging and migrational use.

A coastal inventory to identify areas of important wildlife resource values is presently ongoing along that section of the coast including the proposed Machias River streambank protection project in Machiasport. However, past surveys conducted by this Department have demonstrated shoreline areas on the project site as being utilized for roosting by a variety of shorebird species including upwards of 250 semipalmated sandpipers. Nearby and adjacent flats off Fort O'Brien Point and Randall Point are used extensively for feeding by shorebirds during their fall migration. Our information suggests that the targeted shoreline and intertidal areas are possible candidates for Significant Wildlife Habitat designation under the Natural Resources Protection Act.

To minimize impacts to shorebird feeding and roosting sites, and minimize direct loss of intertidal/riverine habitat, we recommend an analysis of alternatives be required of proposed activities along the Machias River in Machiasport. A major concern is to maintain the maximum amount of shoreline area immediately

adjacent to the intertidal zone while providing for stabilization of the bank and roadway. Further, proposed project activities are likely to result in disturbance of both feeding and roosting activities on and around the project area. Peak shorebird migration in Maine occurs between mid-July and early September. It is our recommendation that project development should occur outside this period of sensitivity.

STATE OF MAINE

Inter-Departmental Memorandum

Date: December 26, 1990

To Bob Blakesley Dept. SPO

From Ken Beland, Fishery Biologist Dept. ASRSC

Subject U.S. Army COE streambank projects

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I would like to offer the following comments on the two subject COE streambank projects:

Narraguagus River, Millbridge

Machias River, Machiasport

The Salmon Commission staff has reviewed both COE applications and find that the impact to the Atlantic salmon resource will be negligible. For the Narraguagus project, we recommend that the work not take place between April 1 and July 4, in order to minimize the possibility of disrupting anadromous fish runs (salmon, shad and alewives). The two bridges in Milbridge form a bottleneck for migrating fish, and any activity that might delay fish from passing this point could expose upstream migrants additional seal depredations beyond those that occur without disruptions. During April and May, salmon smolts are leaving the river and beginning their transition to seawater. Any activity that could disrupt migrations near the bridges could increase the stress on these fish. On the Machias River, I do not foresee such effects, because the site does not contain a bottleneck, such as a bridge.

APPENDIX B

REQUIRED FEDERAL STATE, OR LOCAL PERMITS

FEDERAL

- o Water Quality Certification (issued by State of Maine Department of Environmental Protection under authority granted in section 401 of Clean Water Act
- o Coastal Zone Management Consistency Determination (issued by State of Maine Department of Environmental Protection under authority granted in the Coastal Zone Management Act of 1972, as amended).

STATE AND LOCAL

- o Wetlands Alteration Permit (issued by State of Maine Department of Environmental Protection under authority granted by the State Natural Resources Protection Act)
- o Town of Milbridge Land Use Permit (issued by the town Planning Board under authority granted in the town Land Use Ordnance and Shoreline Zoning Ordnance.

*: Note that NED will file a joint application for Water Quality Certification/Costal Zone Consistency.

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

After careful consideration of the information in this Environmental Assessment, it is my conclusion that the proposed shoreline erosion control project in Milbridge, Maine is in the public interest, and would have no significant impact on the environment.

In my evaluation, this Environmental Assessment has been prepared in accordance with the National Environmental Policy Act of 1969. The determination that an Environmental Impact Statement is not required is based on the information contained in the Environmental Assessment, including the following considerations.

1. The proposed plan would have no significant impact on any rare, threatened or endangered species.

2. The proposed project would have no adverse affect upon any structure or site of historic, architectural or archaeological significance.

3. With the exception of localized, short-term increases in turbidity, the project would have no impact on the water quality of the Narraguagus River.

4. The project would have no significant impact on the natural resources of the Narraguagus River estuary.

5. Several measures would be implemented to minimize potential adverse environmental consequences (see Section V of the Environmental Assessment).

In my evaluation, the Environmental Assessment has been prepared in accordance with the National Environmental Policy Act of 1969. Based on my evaluation of the environmental effects as presented in the Environmental Assessment, I have determined that this project is not a major federal action significantly affecting the quality of the human environment. It is therefore exempt from requirements to prepare an Environmental Impact Statement.

19 Jun 91
Date

Philip R. Harris,
Colonel, Corps of Engineers
Division Engineer

NEW ENGLAND DIVISION
U.S. ARMY CORPS OF ENGINEERS, WALTHAM, MA
SECTION 404(b)(1) EVALUATION

PROJECT: Route 1A Streambank Protection Project, Narraguagus River, Milbridge, Maine

PROJECT MANAGER: Mr. Robert Russo EXT. 617-647-7381

FORM COMPLETED BY: Mr. Michael Penko EXT. 617-647-8139

PROJECT DESCRIPTION:

The proposed project would stabilize a 150 ft. reach of the Narraguagus River in Milbridge, Maine. The erosion site is located directly upstream from the southernmost Route 1A bridge (see Plate 2 in DPR). The existing embankment would be cleared of vegetation, grubbed, and replaced with rock revetment. The lower slope of the revetment would consist of 2.5 ft. thick stone protection underlain by a 1 ft. thick layers of stone and gravel bedding, and a 0.5 foot thick layer of sand bedding, all graded at a 1:2.5 vertical to horizontal (v:h) slope (see Plate 3 in DPR). The upper slope would consist of seeded topsoil underlain by granular fill graded at a ca. 1:2.5 slope. The work would take about 1 month to complete.

NEW ENGLAND DIVISION
U.S. ARMY CORPS OF ENGINEERS, WALTHAM, MA

PROJECT: Route 1A Streambank Protection Project, Narraguagus River, Milbridge, Maine

SHORT-FORM
Evaluation of Section 404(b)(1) Guidelines

1. Review of Compliance (Section 230.10(a)-(d)).

a. The discharge represents the least environmentally damaging practicable alternative and if in a special aquatic site, the activity associated with the discharge must have direct access or proximity to, or be located in the aquatic ecosystem to fulfill its basic purpose;

|X| YES | | NO

b. The activity does not appear to: 1) violate applicable state water quality standards or effluent standards prohibited under Section 307 of the CWA; 2) jeopardize the existence of Federally listed threatened and endangered species or their critical habitat; and 3) violate requirements of any Federally designated marine sanctuary check responses from resource and water quality certifying agencies);

|X| YES | | NO

c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, and economic values;

|X| YES | | NO

d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem

|X| YES | | NO

2. Technical Evaluation Factors (Subparts C-F).

	N/A	Not Significant	Significant
a. Potential Impacts on Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C).			
1) Substrate.			X
2) Suspended particulates/turbidity.			X
3) Water.			X
4) Current patterns and water circulation.			X
5) Normal water fluctuations.	X		
6) Salinity gradients.	X		
b. Potential Impacts on Biological Characteristics of the Aquatic Ecosystem (Subpart D).			
1) Threatened and endangered species.	X		
2) Fish, crustaceans, mollusks and other aquatic organisms in the food web.			X
3) Other wildlife.			X
c. Potential Impacts on Special Aquatic Sites (Subpart E).			
1) Sanctuaries and refuges.	X		
2) Wetlands.			X
3) Mud flats.			X
4) Vegetated shallows.	X		
5) Coral reefs.	X		
6) Riffle and pool complexes.	X		
d. Potential Effects on Human Use Characteristics (Subpart F).			
1) Municipal and private water supplies.	X		
2) Recreational and Commercial fisheries.			X
3) Water-related recreation.			X
4) Aesthetics.			X
5) Parks, national and historic monuments, national seashores, wilderness areas, research sites, and similar preserves.	X		

3. Evaluation and Testing (Subpart G).

a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material. (Check only those appropriate.)

1) Physical characteristics	[X]
2) Hydrography in relation to known or anticipated sources of contaminants	[ ]
3) Results from previous testing of the material or similar material in the vicinity of the project	[ ]
4) Known, significant sources of persistent pesticides from land runoff or percolation	[ ]
5) Spill records for petroleum products or designated hazardous substances (Section 311 of CWA)	[ ]
6) Public records of significant introduction of contaminants from industries, municipalities, or other sources	[ ]
7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	[ ]
8) Other sources (specify)	[X]

List appropriate references.

Environmental Assessment completed for this project.

b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and disposal sites and not likely to require constraints. The material meets the testing exclusion criteria. [X] YES [ ] NO

4. Disposal Site Delineation (Section 230.11(f)).

a. The following factors, as appropriate, have been considered in evaluating the disposal site.

1) Depth of water at disposal site	X
2) Current velocity, direction, and variability at disposal site	
3) Degree of turbulence	
4) Water column stratification	
5) Discharge vessel speed and direction	
6) Rate of discharge	
7) Dredged material characteristics (constituents, amount, and type of material, settling velocities)	
8) Number of discharges per unit of time	
9) Other factors affecting rates and patterns of mixing (specify)	

List appropriate references. See Environmental Assessment

b. An evaluation of the appropriate factors in 4a above indicates that the disposal site and/or size of mixing zone are acceptable.....

YES	NO
X	

5. Actions To Minimize Adverse Effects (Subpart H).

All appropriate and practicable steps have been taken, through application of recommendation of Section 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.....

YES	NO
X	

List actions taken.

See Environmental Assessment prepared for this project.

6. Factual Determination (Section 230.11).

A review of appropriate information as identified in items 2 - 5 above indicates that there is minimal potential for short or long term environmental effects of the proposed discharge as related to:

a.	Physical substrate (review sections 2a, 3, 4, and 5 above).	YES |X|	NO | |
b.	Water circulation, fluctuation and salinity (review sections 2a, 3, 4, and 5).	YES |X|	NO | |
c.	Suspended particulates/turbidity (review sections 2a, 3, 4, and 5).	YES |X|	NO | |
d.	Contaminant availability (review sections 2a, 3, and 4).	YES |X|	NO | |
e.	Aquatic ecosystem structure, function and organisms (review sections 2b and c, 3, and 5)	YES |X|	NO | |
f.	Proposed disposal site (review sections 2, 4, and 5).	YES |X|	NO | |
g.	Cumulative effects on the aquatic ecosystem.	YES |X|	NO | |
h.	Secondary effects on the aquatic ecosystem.	YES |X|	NO | |

7. Findings of Compliance or non-compliance.

a. The proposed disposal site for discharge of dredged or fill material complies with the Section 404(b)(1) guidelines.....\|X\|

19 Jan 91
DATE

Philip R. Harris
Colonel, Corps of Engineers
Division Engineer

ENCLOSURE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
TRANSPORTATION BUILDING
STATE HOUSE STATION 16 AUGUSTA, MAINE 04333-0016

DANA F. CONNORS
Commissioner

June 6, 1991

Philip R. Harris
Division Engineer
New England Division, Corps of Engineers
424 Trapelo Road
Waltham, MA 02254-9149

Dear Colonel Harris:

This is in response to your May 22, 1991 letter regarding proposed slope protection on U.S. Route 1A, along the Narraguagus River in Milbridge , Maine.

We are prepared to cooperate fully with the Corps of Engineers on this project. I understand that this work was requested by local, municipal officials and that the construction phase will not begin until at least next Spring. The Chief Engineer, Richard A. Coleman, and his staff are now reviewing the project documents and draft agreement you sent. Specific comments, if any, will be addressed to you directly by Mr. Coleman, or his designee. I do not see the cost sharing requirements you detailed as being a problem in this case.

Thank you for your early communication. We look forward to working with you on this project.

Sincerely,

Dana F. Connors
Commissioner

RMP:RAC:bb

cc: William H. Treworgy, Milbridge Town Mgr.
Robert Blakesly, State Planning Office
Richard A. Coleman, Dept. of Transportation